

## ENVIRONMENTAL ASSESSMENT

### ARCTIC GRAYLING RESTORATION PROPOSAL UPPER MADISON, LOWER BEAVERHEAD, AND MISSOURI RIVER HEADWATERS JUNE 1999



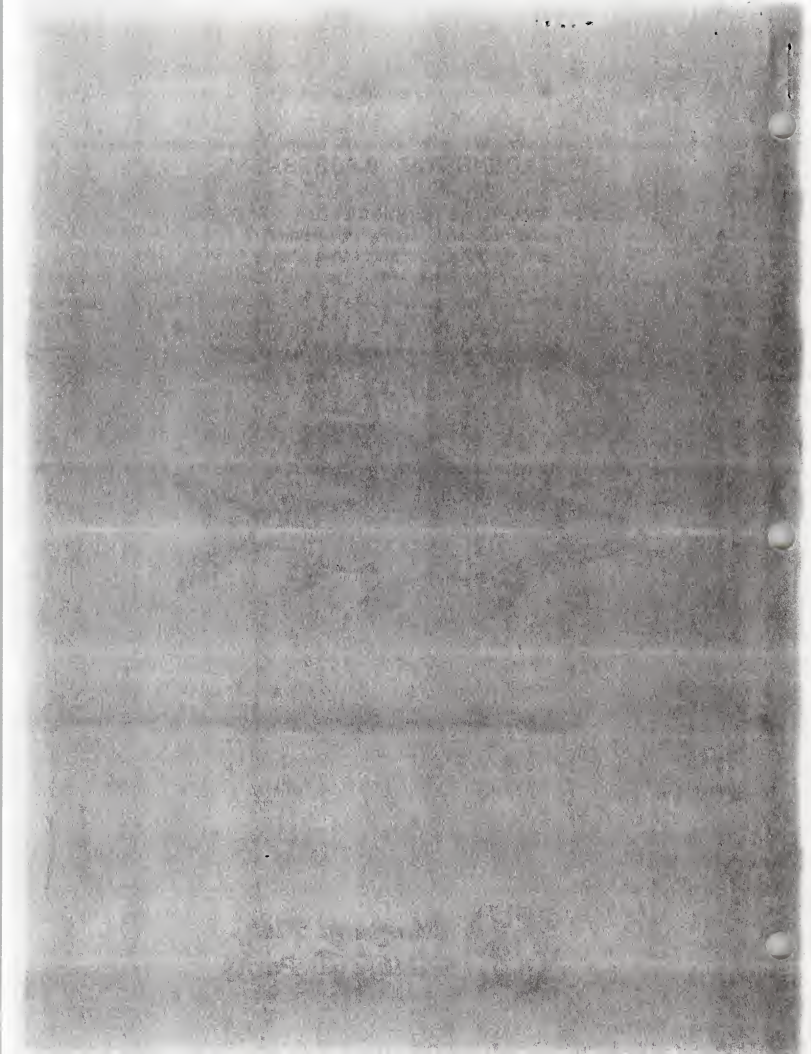
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**Montana Fish,  
Wildlife & Parks**



# DRAFT

## MEPA/NEPA/HB495 CHECKLIST

### PART I. PROPOSED ACTION DESCRIPTION

1. Type of Proposed State Action Proposal to reintroduce fluvial Arctic grayling to three river sites in the upper Missouri River drainage above Toston Dam.
2. Agency Authority for the Proposed Action Montana Fish, Wildlife & Parks
3. Name of Project Reestablishment of fluvial Arctic grayling.
4. Name, Address and Phone Number of Project Sponsor (if other than the agency)  
N/A
5. If Applicable:  
Estimated Construction/Commencement Date September 1999  
Estimated Completion Date N/A  
Current Status of Project Design (% complete) N/A
6. Location Affected by Proposed Action (county, range and township)
  1. Missouri River from Toston Dam to its headwaters at Three Forks (22 miles), including the Gallatin River from its mouth to the confluence of the East Gallatin River (12 miles), the Madison River from its mouth to the Greycliff Fishing Access Site (21 miles), and the Jefferson River from its mouth to the confluence of Willow Creek (18 miles).
  2. Madison River from the head of Ennis Reservoir to the outlet of Earthquake Lake (56 miles).
  3. Beaverhead River from its mouth to the confluence of Stodden Slough (40 miles).
7. Project Size: Estimate the number of acres that would be directly affected that are currently:

<p>(a) Developed: residential . . . . . __ acres industrial . . . . . __ acres</p> <p>(b) Open Space/Woodlands/ Recreation . . . . . __ acres</p> <p>(c) Wetlands/Riparian Areas . . . . . __ acres</p> <p>(d) Floodplain . . . . . __ acres</p>	<p>(e) Productive: irrigated cropland . . . . . __ acres dry cropland . . . . . __ acres forestry . . . . . __ acres rangeland . . . . . __ acres other . . . . . __ acres</p>
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8. Map/site plan: attach an original 8 1/2" x 11" or larger section of the most recent USGS 7.5' series topographic map showing the location and boundaries of the area that would be affected by the proposed action. A different map scale may be substituted if more appropriate or if required by agency rule. If available, a site plan should also be attached.

See attached map.

9. Narrative Summary of the Proposed Action or Project including the Benefits and Purpose of the Proposed Action.

Arctic grayling (*Thymallus arcticus*) were once widespread in the Missouri River drainage upstream from Great Falls. During the 20th century, the range of fluvial, or river-dwelling, grayling became restricted to the Big Hole River, which represents about 4% of its native range. The Big Hole River grayling population declined in abundance in the mid 1980's to 22 per mile in 1989, a precariously low level. Concern for the population resulted in formation of the Interagency Fluvial Arctic Grayling Workgroup (FGW) to coordinate restoration of fluvial grayling in the Big Hole River and throughout its native range in Montana. The Montana Fluvial Arctic Grayling Restoration Plan was developed to recover fluvial Arctic grayling with a goal of at least five stable, viable populations distributed among at least three of the major river drainages within the historic range of Montana grayling.

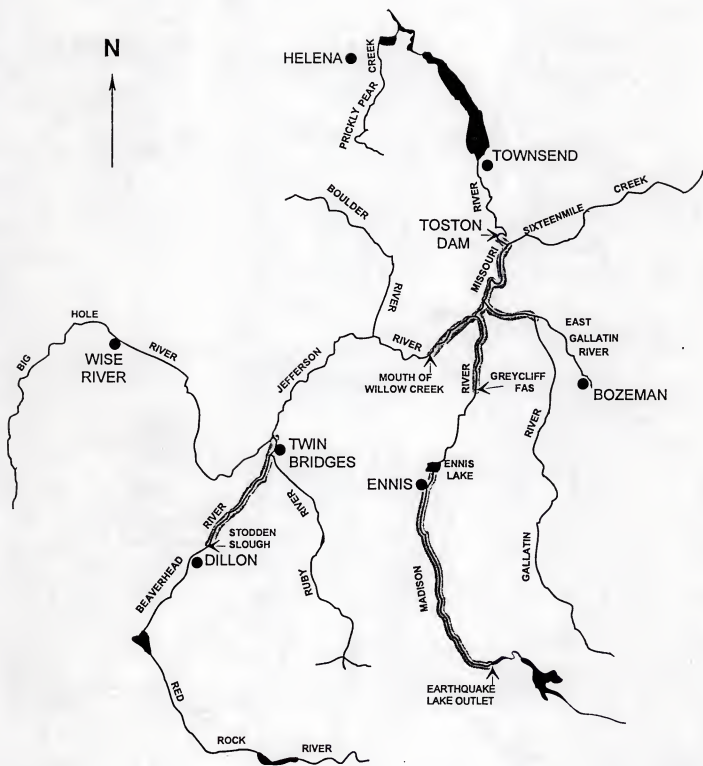
A memorandum of agreement between the U.S. Fish and Wildlife Service and Montana Fish, Wildlife & Parks requires four reintroduction efforts to be in progress by December 31, 2000. The reintroduction of grayling to the upper Ruby River, above Ruby Reservoir, has been ongoing since 1997; the North and South forks of the Sun River are slated to begin in June 1999. In July 1998, the FGW supported three additional reintroduction sites: (1) the Missouri River Headwaters near Three Forks, (2) the upper Madison River, and (3) the lower Beaverhead River (see attached maps).

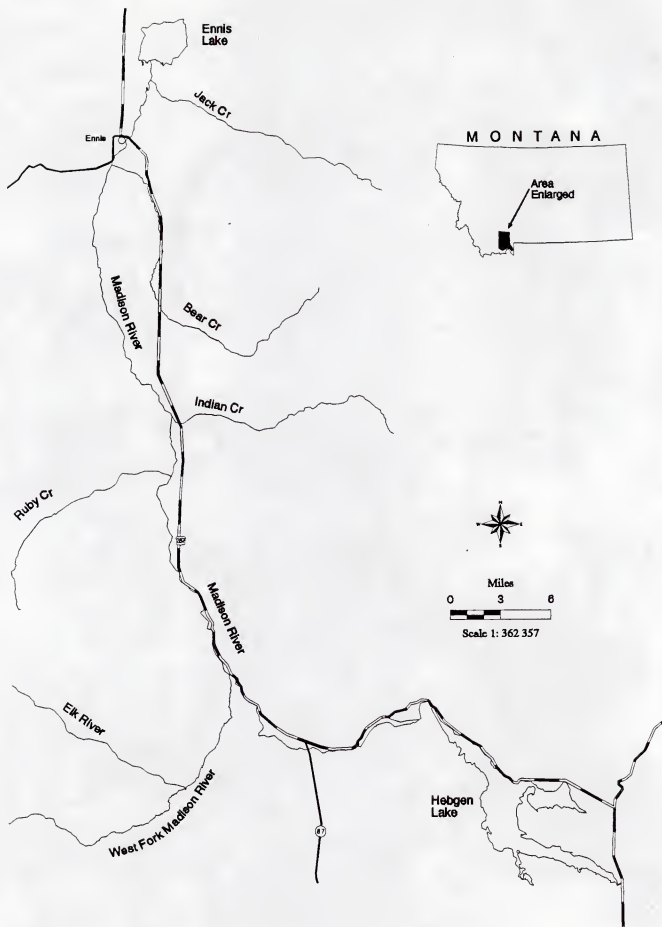
The long river reaches within the designated boundaries of the three proposed sites are targeted for grayling reintroduction. However, introduced grayling could stray beyond these boundaries and potentially establish year-round or seasonal populations elsewhere. The length of the reaches - 40, 56 and 73 miles - should help to minimize straying. These long, unimpeded reaches are needed to accommodate the seasonal migrations that are believed to characterize fluvial grayling populations.

The three proposed reintroduction sites generally contain suitable grayling habitat, specifically long reaches of low-gradient stream, deep pools and runs, adequate spawning gravel and acceptable water quality. However, each has shortcomings that could hinder success. A brief discussion of each site's positive and negative attributes follows.

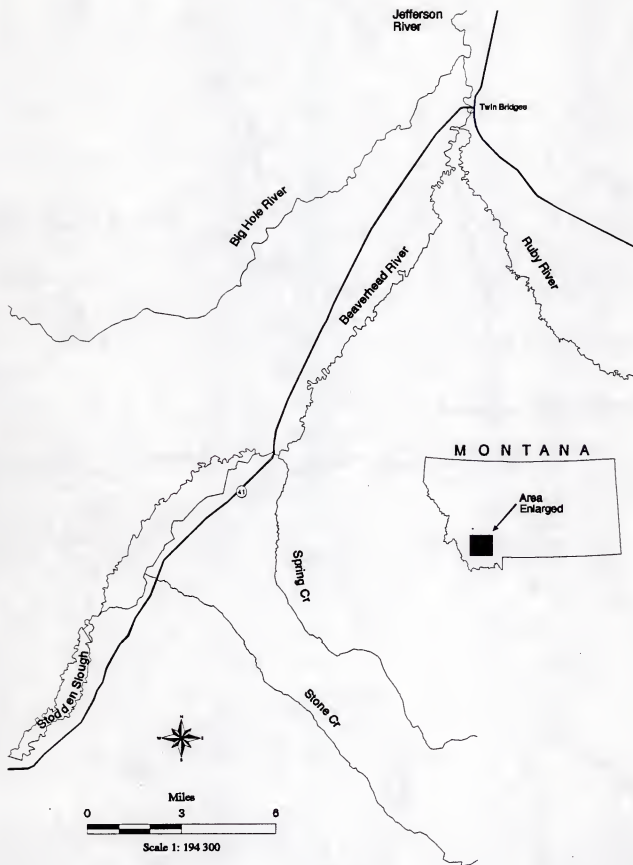
1. Missouri River Headwaters

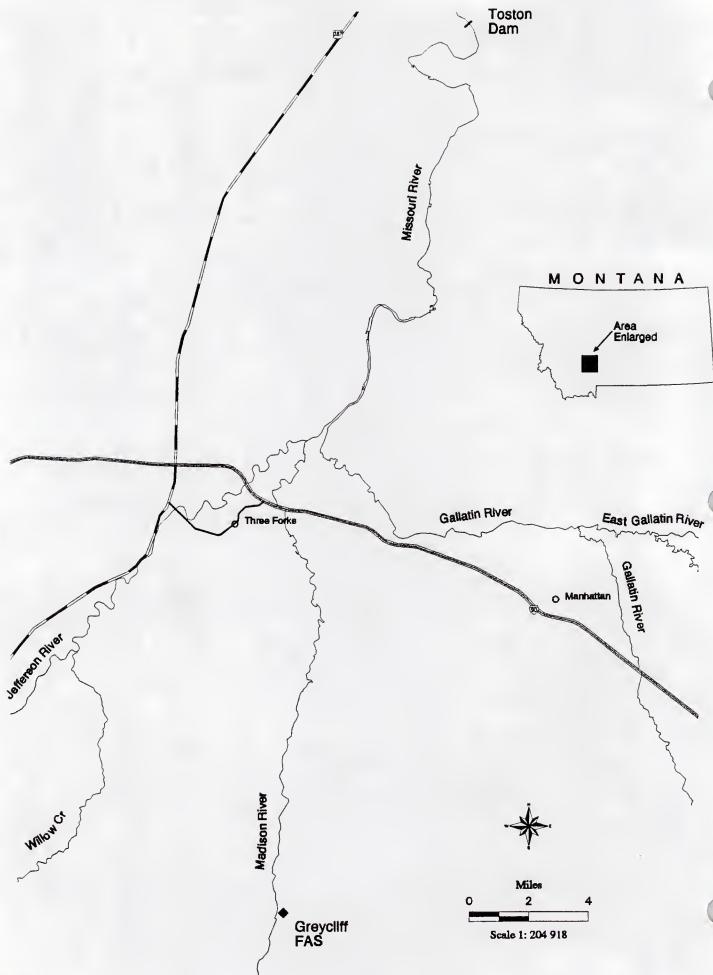
This reintroduction site, which encompasses 73 river miles, begins at Toston Dam, extends to the Missouri River headwaters at Three Forks and continues upstream into the lower reaches of the Gallatin, Jefferson and Madison rivers. Unimpeded access into long reaches of potential grayling habitat characterize the site. The four affected reaches on the Missouri, Madison, Gallatin and Jefferson rivers support low numbers of potentially competing non-native trout, estimated at about 225-600 adults per mile of river; offer access to potential grayling spawning areas in the Gallatin, Madison and Jefferson River drainages; contain deep pools and side channels, habitats well suited for grayling; and support low angling pressure. Trout populations, although low, are dominated by brown trout, a potentially strong predator/competitor that could influence reintroduction success. Other













shortcomings include the periodic summer dewatering of the Missouri, Gallatin and Jefferson rivers and an accompanying increase in water temperatures, which can reach near lethal levels for salmonids; the chronically high summer water temperatures of the lower Madison River, which are passed downstream to the Missouri River; and in-channel sediment accumulations that degrade potential grayling habitats.

2. Upper Madison River

This 56-mile-reach between Ennis Reservoir and Earthquake Lake was initially precluded as a reintroduction site due to the presence of "lake-dwelling" grayling in Ennis Reservoir and the potential to genetically contaminate this resident stock. A subsequent genetic risk assessment concluded that the risk was minimal and a reintroduction could proceed.

Whirling disease has reduced the Madison's once thriving rainbow trout population to about 1,100 age one and older fish per mile in the Pine Butte section, which is well below the pre-whirling disease average of about 3,800 fish per mile. In the Varney section, where traditional grayling habitats are more prevalent, rainbow trout densities are currently 350-400 age one and older fish per mile, reduced from pre-whirling disease densities of 500-1000 fish per mile. Depressed rainbow numbers in the Madison River could benefit grayling survival, thereby enhancing reintroduction success. However, the Madison's depressed rainbow population is still potentially capable of overwhelming the introduced grayling. In field trials on the Big Hole River to observe interactions between grayling and rainbow trout, grayling were able to defend their positions against incursions by rainbow trout until rainbow numbers far exceeded those of grayling, forcing grayling to expend more energy defending their positions than they gained from feeding. Once rainbow trout exceeded an approximate density of 500-1,000 per mile, Big Hole grayling were apparently unsuccessful at competing for space. Rainbow trout densities in the upper reaches (Pine Butte) of the Madison River, although moderate at best, may exceed the critical threshold derived from the Big Hole studies. A valid concern is that the introduced grayling may not successfully compete at the planted densities likely to be achieved in the Madison River. Moreover, the Madison's brown trout, a potentially strong predator/competitor of grayling, continue to flourish at 1,000 - 2,500 fish per river mile. Brown trout densities are highest downstream from Varney, which is also the stretch having the best potential habitat - large, deep pools, numerous side channels and areas of slow moving water - for grayling. Upstream from Varney, fast flowing, shallow riffles - habitats less suited for grayling - predominate. Habitat limitations coupled with significant rainbow trout densities and a strong brown trout population are potential shortcomings that could hinder success.

Another potential problem is the ready access to Ennis Reservoir. A theory, although unproven, is that grayling will not remain fluvial over time if they have unimpeded access to a nearby lake or reservoir. Planted grayling and their offspring could enter Ennis Reservoir, develop "lake-dwelling" traits and only return to the Madison River and its tributaries to spawn, thereby altering the fluvial behavior of the introduced grayling.

Positive attributes of the Madison River reintroduction site include the absence of significant stream dewatering; presence of favorable year-round water temperatures; excellent water quality; an abundance of spawning gravel; good overall productivity; and healthy streambanks and riparian habitats.

3. Lower Beaverhead River

The designated reintroduction site on the Beaverhead River encompasses the 40 miles of river between the confluence of Stodden Slough, downstream from Dillon, and the river's mouth at Twin Bridges. The dam at Barrett's Diversion would prevent grayling from straying upstream and entering the popular and highly productive trout fishery of the upper Beaverhead River. Interaction with the grayling population of the neighboring Big Hole River is a possibility if reintroduction succeeds. Low numbers of brown trout (about 300 per mile) inhabit the reintroduction site; few rainbow trout are present. Fishing pressure is low. Freshly eroded gravel needed for spawning is readily available. The construction of Clark Canyon Dam in the mid-1960s eliminated the extreme dewatering that likely contributed to the historic demise of the river's grayling population. However, periodic dewatering and accompanying high water temperatures are still a problem. An inverted hydrograph (annual high flows occur in winter, rather than spring), poor riparian health, and in-channel sediment accumulations could further hinder success.

Selective stocking of the three reintroduction sites could begin as early as fall 1999. Yearling (overwintered) grayling descended from wild, fluvial Big Hole stock will be planted. The Big Hole River grayling have survived many environmental changes over the past 100 years, including stream dewatering, elevated water temperatures, barriers blocking seasonal migrations, and non-native trout introductions. Progeny from the surviving Big Hole stock may offer a better chance to reestablish populations in the modified and/or degraded aquatic reaches that characterize virtually all of Montana's rivers, including the proposed reintroduction sites.

Stocking a minimum of about 350 yearlings per mile - a total of 59,150 for the 169 miles of affected water - is the annual goal. Assuming about a 75% annual mortality of stocked yearlings, (based on previous Alaska studies and overwinter survival of stocked yearling grayling in the Ruby River 1998-1999), approximately 90 survivors are likely to remain per mile after one year, which is roughly the Big Hole River's highest density of age 1 and older grayling in recent years - the only standard FWP has for estimating the density that's needed to perpetuate a self-sustaining grayling population. If survival after the first year's plant is inadequate, subsequent stocking rates may be increased (if excess yearlings are available) to improve the chance of success.

FWP does not anticipate having a sufficient supply of yearling grayling to meet reintroduction goals at all ongoing and proposed sites until 2001. Until then, the proposed sites will be brought on line based on the supply of available grayling. Once stocking begins, a site will be planted for four consecutive years unless data indicate that the establishment of a reproducing, self-sustaining population is unlikely. Yearling grayling will be released in late June or early July immediately following spring runoff.

Monitoring to evaluate reintroduction success and to document factors that may hinder or help future reintroductions will be conducted by FWP. Monitoring will continue for at least three years following the last (4th) year of planting. This allows FWP to determine if reproduction by the progeny of stocked grayling is sufficient to sustain a population.

Grayling monitoring will be incorporated into FWP's existing electrofishing studies, which are annually or periodically conducted on the upper and lower reaches of the Madison River, the lower Beaverhead River and the lower Jefferson River to assess trout populations. Former electrofishing study sections on the Missouri River near Three Forks and the lower Gallatin River will be reactivated to gather trout data and to monitor grayling. Established study reaches on the upper Madison River include the (1) Pine Butte, (2) Snoball and (3) Varney sections. Study reaches for the Missouri Headwaters reintroduction site include (1) the Greycliff section of the lower Madison River, (2) Logan section of the lower Gallatin River, (3) Three Forks section of the lower Jefferson River and (4) Trident section of the Missouri River. For the lower Beaverhead River, study reaches include the (1) Anderson Lane, (2) Mule Shoe and (3) Twin Bridges sections. Additional sites may be surveyed to define grayling distribution and to identify important habitats. Population work in

the fall will assess grayling survival, densities, and habitat usage. Spring surveys will assess spawning age structures and identify spawning areas.

Streamflows and water temperatures will be monitored at existing USGS gage sites. Additional temperature monitoring sites could be established by FWP if needed.

Graduate students and other university personnel could also share monitoring duties. Their studies could involve food habits of grayling and sympatric species using gastric lavage techniques, tagging grayling with VI or coded wire tags, radio telemetry, habitat analyses and creel surveys.

**10. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.**

(a) Permits:

Agency Name Permit Date Filed/#

N/A

(b) Funding:

Agency Name Funding Amount

N/A

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name Type of Responsibility

N/A

**11. List of Agencies Consulted During Preparation of the EA:**

U.S. Fish and Wildlife Service  
Fluvial Arctic Grayling Workgroup

## PART II. ENVIRONMENTAL REVIEW

### PHYSICAL ENVIRONMENT

1. <u>LAND RESOURCES</u>	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
► a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
► c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other _____						

\* Include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

### PHYSICAL ENVIRONMENT

2. <u>AIR</u>	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
► a. Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e.*For P-R/D-J projects, will the project result in any discharge which will conflict with federal or state air quality regs? (Also see 2a)		X				
f. Other _____						

\* Include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Air Resources (Attach additional pages of narrative if needed):

- ◊ Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.
- ♦ Include a narrative description addressing the items identified in 12.B.604-1a (ARM)
- ♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.
- ♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

# **PHYSICAL ENVIRONMENT**

3. <u>WATER</u>	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
► a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of flood water or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
► ♦ For P-R/D-J, will the project affect a designated floodplain? (Also see 3c)		X				
m. ♦ For P-R/D-J, will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a)		X				
n. Other: _____						

<sup>o</sup> include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Water Resources (Attach additional pages of narrative if needed):

Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

► Include a narrative description addressing the items identified in 12.8.604-1a (ARM)

♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

# **PHYSICAL ENVIRONMENT**

4. <u>VEGETATION</u>  Will the proposed action result in:	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. ♦♦For P-R(D)-J, will the project affect wetlands, or prime and unique farmland?		X				
g. Other: _____						

\* include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Vegetation Resources (Attach additional pages of narrative if needed):

- o Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.
- Include a narrative description addressing the items identified in 12.8.604-1a (ARM)
- ♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.
- ♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.



# PHYSICAL ENVIRONMENT

► 5. FISH/WILDLIFE	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?			X			See 5b. Below
c. Changes in the diversity or abundance of nongame species?		X				
d. Introduction of new species into an area?		X				See 5d. Below
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. ♦♦For P-R/D-J, will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				
i. ♦For P-R/D-J, will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)		X				See 5i. Below
Other: _____						

<sup>o</sup> Include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Fish/Wildlife Resources (Attach additional pages of narrative if needed):

5b. This project could contribute to an increased abundance of grayling in Montana's rivers.

5d. Grayling were historically present in the three reintroduction sites. The addition of grayling constitutes a return of an indigenous species to its native range. Grayling have been collected in the Madison, Jefferson, and Beaverhead Rivers in recent FWP population surveys.

5i. The project will introduce grayling to waters formerly occupied by the species.

Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Include a narrative description addressing the items identified in 12.8.604-1a (ARM)

Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Increases in existing noise levels?		X				
b. Exposure of people to serve or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other: _____						

\* include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Noise/Electrical Resources (Attach additional pages of narrative if needed):

## HUMAN ENVIRONMENT

7. LAND USE	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Other: _____						

\* include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

- o Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.
- ♦ Include a narrative description addressing the items identified in 12.8.604-1a (ARM)
- ♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.
- ♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## HUMAN ENVIRONMENT

8. <u>RISK/HEALTH HAZARDS</u>	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. *For P-R/D-L, will any chemical toxicants be used? (Also see 8a)		X				
e. Other: _____						

\* include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Risk/Health Hazards (Attach additional pages of narrative if needed):

## HUMAN ENVIRONMENT

9. <u>COMMUNITY IMPACT</u>	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other: _____						

\* include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Community Resources (Attach additional pages of narrative if needed):

Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

Include a narrative description addressing the items identified in 12.8.604-1a (ARM)

Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## HUMAN ENVIRONMENT

10. PUBLIC SERVICES/TAXES/UTILITIES	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:			X			See 10a. Below
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
▶ e. Define projected revenue sources		X				See 10e. Below
▶ f. Define projected maintenance costs.		X				
g. Other:						

\* Include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluation.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Public Services/Taxes/Utilities (Attach additional pages of narrative if needed):

10a. Stocking and management efforts will require a slight redirection of the duties and responsibilities of a few fisheries personnel. All duties and responsibilities will be absorbed by existing personnel. Planting all ongoing and proposed reintroduction sites will annually require a total of about 86,000 yearling grayling, weighing 12,500 pounds. Space at some of FWP's cold-water hatcheries is being reallocated to grayling, thereby annually reducing FWP's total trout production (in pounds) by about 5½%.

10e. Existing revenue sources will cover the cost of this project.

- o Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.
- ▶ Include a narrative description addressing the items identified in 12.8.604-1a (ARM)
- ♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.
- ♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## HUMAN ENVIRONMENT

▶ 11. AESTHETICS/RECREATION	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)			X			See 11c. Below
d. ♦For P-R/D-J, will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
e. Other: _____						

\* Include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluation.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Aesthetics/Recreation (Attach additional pages of narrative if needed):

11c. This reintroduction could increase the diversity of fish species that are available to anglers, increasing angling opportunities.

## HUMAN ENVIRONMENT

12. CULTURAL/HISTORICAL RESOURCES	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action result in:						
▶ a. Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. ♦♦For P-R/D-J, will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a)		X				
e. Other: _____						

\* include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluation.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Cultural/Historical Resources (Attach additional pages of narrative if needed):

Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

▶ Include a narrative description addressing the items identified in 12.B.604-1a (ARM)

♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## HUMAN ENVIRONMENT

13. SUMMARY EVALUATION OF SIGNIFICANCE	IMPACT <sup>o</sup>				Can Impact Be Mitigated <sup>o</sup>	Comment Index
	Unknown <sup>o</sup>	None	Minor <sup>o</sup>	Potentially Significant		
Will the proposed action, considered as a whole:						
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. ♦For P-R/D-J, is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)			X			See 13f. Below
g. ♦♦For P-R/D-J, list any federal or state permits required.		X				

<sup>o</sup> include an attachment with a narrative explanation describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.

13f. Based on opposition to other reintroduction efforts, some opposition is expected.

- ☆ Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or can not be evaluated.
- ♦ Include a narrative description addressing the items identified in 12.8.604-1a (ARM)
- ♦ Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.
- ♦♦ Include a discussion about the issue in the EA narrative and include documentation if it will be useful.



2. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:

The "no action" alternative - no planting of grayling.

Failure to initiate reintroductions will maintain the current restricted range of fluvial Arctic grayling. Only one viable, self-sustaining population - in the upper Big Hole River - will potentially remain, increasing the chance that a catastrophic event could eliminate wild fluvial grayling from Montana's waters. Insufficient progress toward conserving and restoring the species will be made, increasing the likelihood and necessity of listing fluvial grayling as an endangered species under the Endangered Species Act. Insufficient progress will be made toward reaching the goals of the Montana Fluvial Arctic Grayling Restoration Plan and satisfying a memorandum of agreement with the U.S. Fish and Wildlife Service, which requires FWP to initiate four new reintroductions by December 31, 2000. If the reintroductions are not completed on schedule, the U.S. Fish and Wildlife Service could initiate an endangered listing for the species.

3. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency: N/A

4. Based on the significance criteria evaluated in this EA, is an EIS required? YES / NO If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

No. This review has clearly demonstrated that the impacts associated with this project are insignificant. The net result of the proposed work is a positive improvement to the human environment.

5. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

On April 6, 8, and 12, 1999, FWP held public scoping meetings in Ennis, Three Forks and Twin Bridges, respectively, to hear the public's concerns and gather comments regarding the reintroduction proposal. Meetings were advertised in local newspapers and in direct mailings. A summary of these scoping issues and responses have been addressed in Appendix A and have been incorporated into the EA where appropriate.

Copies of the Environmental Assessment (EA) are being sent to individuals, groups and governmental entities that have in the past expressed interest in stocking and reintroduction issues. This EA will be available from Montana Fish, Wildlife & Parks, 1400 So. 19th, Bozeman, MT 59718, Butte Area Resource Office, 1820 Meadowlark Lane, Butte, MT 59701, and the Helena Area Resource Office, 930 Custer Avenue West, Helena, MT 59620. Public meetings have been scheduled for Ennis on Monday, June 21, 1999 at 7:00 p.m. at the Town Hall, and Twin Bridges on Tuesday, June 22, 1999 at 7:00 p.m. at the High School Cafeteria.

6. Duration of comment period if any:

A thirty day public comment period will start June 7, 1999 and end at 5:00 p.m., July 7, 1999. Comments can be sent to MT Fish, Wildlife & Parks, Arctic Grayling, 1400 So. 19th, Bozeman, MT 59718.

7. Name, title, address and phone number of the Person(s) Responsible for Preparing the EA:

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### **PART III. NARRATIVE EVALUATION AND COMMENT**

# Appendix A

## PUBLIC SCOPING COMMENTS AND CONCERNS

On April 6, 8 and 12, 1999, FWP held public meetings in Ennis, Three Forks, and Twin Bridges, respectively, to hear the public's concerns and gather comments regarding the reintroduction proposal. FWP's written responses to some of the voiced and written comments are presented here.

**Comment:** Sport fishing in the reintroduction waters will cease if the fluvial Arctic grayling is listed under the Endangered Species Act.

**Response:** In nearly all instances when a fish is listed under the Endangered Species Act and the fish may be incidentally caught by recreational anglers, the listing is accompanied by a Special Rule. Under these Special Rules, the incidental catch of a listed fish will not be considered a violation of the Endangered Species Act as long as the fishing follows state laws. The U.S. Fish and Wildlife Service's Montana Field Office envisions that a Special Rule will be issued to ensure recreational fishing in the event that the grayling is listed.

An example is the Special Rule accompanying the 1998 final rule to list the bull trout, which states that fishing conducted in accordance with state and tribal fish and wildlife laws and regulations would not be considered a violation of the Endangered Species Act. This Special Rule allows fishing specifically for bull trout if legal under State law.

Additionally, in 1996, the U.S. Fish and Wildlife Service adopted a policy to address the conservation needs of species listed under the Endangered Species Act while providing for the continuation and enhancement of recreational fisheries. The Service intends to minimize and resolve conflicts between implementation of the Endangered Species Act and activities to enhance recreational fishery resources and recreational fishing opportunities.

**Comment:** Reintroduction of grayling conflicts with FWP's "no stocking" policy for the Madison River.

**Response:** This policy primarily pertains to the planting of hatchery-reared catchables in rivers and streams that are capable of sustaining naturally reproducing, wild trout populations. Introductions of species of "special concern" are exempted from the "no stocking" policy. FWP does not intend to sustain grayling numbers and a grayling sport fishery with a long-term stocking program. Stocking is proposed for four consecutive years to establish multiple year classes and to ultimately create a self-sustaining, natural reproducing population.

**Comment:** The reintroduction of native species to the Madison River will lead to the liberalization of regulations governing the taking of non-native rainbow and brown trout.

**Response:** FWP has no intention of liberalizing trout fishing regulations for the Madison River to benefit native species. FWP recognizes the high economic values associated with the Madison's popular sport fishery for non-native trout. Any future regulation changes affecting trout fishing on the Madison River will be proposed for the benefit of trout conservation and management, not for the sole benefit of native species.

**Comment:** Grayling will negatively interact with rainbow trout, stalling the recovery of the Madison's rainbow population.

**Response:** Pat Byorth and Jim Magee, biologists with FWP, conducted field trials on the Big Hole River to observe interactions between grayling and rainbow trout, species that occupied similar microhabitats within the river. Grayling were able to defend their positions against incursions by rainbow trout until rainbow numbers far exceeded those of grayling, forcing grayling to expend more energy defending their positions than they gained from feeding. Once rainbow trout exceeded an approximate density of 500-1,000 per mile, Big Hole grayling are apparently unsuccessful at competing for space. In fall 1998, the upper

Madison River (Pine Butte section) supported an estimated 1,169 age one and older rainbow trout per mile, and the Varney section 350-400 fish per mile. In the Sportsmans Park area of the Big Hole River rainbow trout coexist with grayling at approximately 250 age one and older fish per mile with 50 age one and older grayling per mile. Rainbow trout densities in the upper river, although moderate at best, may exceed the critical threshold derived from the Big Hole studies. A valid concern is that the introduced grayling may not successfully compete at the planted densities likely to be achieved in the upper river. Grayling pose little threat to the existing rainbow fishery.

**Comment:** Grayling will replace rainbow trout in the Madison River.

**Response:** As previously discussed, data for the Big Hole River strongly suggest that the Madison's rainbow trout have the competitive advantage. The threat of grayling out competing and replacing rainbow trout is remote.

FWP's goal is to add diversity to the Madison's fish community by reestablishing a self-sustaining, native grayling population that is similar in magnitude to that of the Big Hole River (roughly 100 grayling/mile). The presence of grayling, a species comprising but a small portion of the Big Hole's game fish population, does not detract from the Big Hole's national reputation as a "Blue Ribbon" wild trout fishery. If grayling are reestablished in the upper Madison River, FWP anticipates an overall impact similar to that on the Big Hole River.

**Comment:** Anglers prefer to catch rainbow trout rather than grayling.

**Response:** Stream-dwelling grayling add diversity to a Montana trout fishing experience by allowing anglers to catch and admire a relic from the past - a native fish that is far removed from its recognized strongholds in the wilds of Alaska and the far reaches of western Canada.

The Big Hole River - home to the only remaining stream-dwelling grayling population in the lower 48 - attracts a group of enthusiasts who seek grayling despite the river's national acclaim as a wild trout fishery. In a 1991 Big Hole creel survey, 23% of the respondents were specifically fishing for grayling. The fluvial grayling's beauty and rarity, and affinity for the dry fly - characteristics that appear to offset its reputation as an inferior fighter draw the attention of anglers; catching an occasional grayling while fishing for trout is a memorable experience appreciated and enjoyed by many.

**Comment:** Recovery of the Madison's rainbow trout fishery should be completed before introducing another species.

**Response:** There's no evidence to suggest that the recovery of the Madison's rainbow fishery is imminent. Based on annual electrofishing studies, little or no recovery has occurred within the upper river in the past eight years. The estimated number of adult (age two and older) rainbow trout in 1998 (322 per river mile) remains well below the pre-whirling disease average of 1,723 per mile and near the 1991-98 post-whirling disease average of 403 per mile. Waiting until a complete recovery occurs would stall many fishery management options that would ultimately provide for expanded fishing opportunities and also contribute to the preservation of a native fish. Recovering the Madison River fishery will involve components of rainbow trout recovery as well as native species enhancement of fluvial Arctic grayling and westslope cutthroat trout. Whirling disease and life history strategy research of the Madison River rainbow trout population will continue. There is no evidence to suggest that reintroducing Arctic grayling into the Madison River will inhibit rainbow trout recovery.

**Comment:** The Smith River is a better grayling reintroduction site than is the upper Madison River.

**Response:** Unlike the upper Madison River, long reaches of the Smith River experience chronic or periodic summer dewatering, elevated summer water temperatures and increased sediment loads. The Madison's aquatic environment is far less degraded, making it the better candidate for grayling reintroduction. Through well planned monitoring of each reintroduction effort, environmental parameters necessary to successfully establish fluvial Arctic grayling populations will be identified. This will facilitate the assessment of other future reintroduction sites.

**Comment:** The susceptibility of grayling to whirling disease is unclear. Whirling disease could contribute to reintroduction failures.

**Response:** Whirling disease susceptibility tests at the University of California at Davis and two field experiments in Montana strongly support the contention that grayling are highly resistant to infection and disease. There's no evidence to suggest that whirling disease will negatively affect grayling in a whirling disease-positive environment. At this point in time, other factors - competition with resident trout populations being the most notable - are considered more likely to lead to failure than is whirling disease.

**Comment:** Reintroductions could fail because too few grayling are being planted.

**Response:** The annual stocking goal of at least 350 yearling grayling per river mile, which annually translates into a total of 86,000 yearlings for all ongoing and proposed reintroduction sites, already taxes the production capabilities of FWP's cold-water hatcheries. To meet the demand, hatchery space has been reallocated to grayling, thereby annually reducing FWP's total trout production (in pounds) by about 5 1/2 %. Added production is not a viable option at this time. In the event that more yearlings do become available, the need to increase the proposed stocking rate will be explored for selected sites.

**Comment:** Will the BKD-positive grayling stock at the Bozeman Fish Technology Center be used in future reintroductions?

**Response:** Cleanup efforts at the Fish Technology Center are ongoing. This grayling source might be used in the future if the cleanup succeeds and disease and infection-free grayling can be obtained.

**Other Comments:** Supportive voiced and written comments for the restoration proposals are summarized as follows:

- 1) Restoration efforts will facilitate in recovery of a unique native species.
- 2) Restoration efforts will assist in meeting recovery goals thereby maintaining management under state and local control, and decrease the likelihood of the listing of fluvial Arctic grayling under the Federal Endangered Species Act.
- 3) Restoration efforts will increase bio-diversity within the proposed sites with little or no impact on current fisheries or environmental conditions.
- 4) Timely reintroductions of a species highly resistant to whirling disease may allow fluvial Arctic grayling to establish self-sustaining populations increasing bio-diversity and environmental stability, while providing additional angling opportunities.
- 5) Additional angling opportunities may have a positive impact on local economies and is timely with the approaching Lewis and Clark Bicentennial whom first documented Arctic grayling in Montana in 1805.





